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tions occur in accordance with the law of "effort and abstinence."

As to whether acquired characters are inherited, Mr. Syme offers no definite opinion; and hence the most important question in this connection remains unanswered. For, if modifications resulting from the response of an organism to new influences affect only the passing generation, it is difficult to understand how they can become fixed, as they certainly do.

It should be stated further that Mr. Syme avows a belief in the existence of "vital force," which is the cause of the phenomena of life and is inherent in the living cell. He asserts that Lewes's ridicule of this idea was due to his misunderstanding the questions involved.

Our space does not admit of more than a brief mention of Mr. Syme's objections to the theory of natural selection, but many of them deserve serious attention. The case of the relation of humble-bees to clover may be cited as an example. Darwin states that "humble-bees alone visit red clover, . . . hence we may infer as highly probable that if the whole genus of humble-bees became extinct or very rare in England, . . . the red clover would become very rare, or wholly disappear" (*Origin of Species*, Ed. 1880, p. 57). On this point Mr. Syme remarks: "Darwin says that *T. pratense* will not produce seed unless it has been visited by humble-bees. . . . But this is quite a mistake. Red clover seed had been grown and exported from New Zealand long before the humble-bee was introduced there; and I am informed by one of the leading Melbourne seedsmen that he has been supplied with this seed, grown in the western district of Victoria, for the last 17 years; although no humble-bees have ever been introduced into that colony" (p. 112). It does not seem possible that both these statements can be true.

Many similar facts regarding the relation of insects to the color and form of flowers, the results of cross-fertilization, and the significance of secondary sexual characters, are cited by Mr. Syme in his endeavor to prove the falsity and insufficiency of the theory of natural selection.

F. W. T.

The Apodidae. A morphological study. By H. M. BERNARD. *Nature Series.* London and New York, Macmillan & Co. 8°. \$2.

THIS is an extremely interesting study of the Phyllopod crustaceans, *Apus*, *Lepidurus*, etc., with the view of using them as a key to solve the problem as to the origin of the crustacea and the true affinities between the different groups. His study has led the author to the conclusion that *Apus* is derived from a carnivorous annelid, whose five anterior segments have become ventrally bent over. He believes he has shown the trunk of *Apus* to be a true link between the many segmented annelids and the crustacean fewer-segmented body, that it exhibits a gradual transformation of the annelidan cuticle into the crustacean exo-skeleton, while the annelidan parapodia are shown to be capable of developing every form of crustacean limb, *Apus* supplying the clue. In short, he regards *Apus* as affording an almost ideal transition form between the annelids and crustacea. Further, he shows that if this is true for *Apus*, the long-contested *Limulus* or horseshoe crab and the Trilobites must have had a similar origin. He concludes that while only one group of modern crustacea admits of derivation from the Trilobites, all the rest except *Limulus* can be deduced from the *Apodidae*.

Whether this hypothesis be finally accepted or not, the author's discussion throws light on many contested points, and cannot fail to have a beneficial influence on future discussions and theories of classification of the animals to which it relates.

Lessons in Elementary Biology. By T. JEFFREY PARKER. London, Macmillan & Co. 8°. \$2.25.

PROFESSOR PARKER, a well known pupil of Huxley and professor of zoology in the University of Otago, New Zealand, has endeavored in this work to give an account of the structure, physiology and life history of a series of typical organisms in the order of their increasing complexity. He begins with the unicellular organisms *Amœba*, *Hæmatococcus*, *Heteromita*, *Euglena*, *Proto-myxa*, *Mycetozoa*, *Saccharomyces*, and *Bacteria*. He then takes

up those unicellular forms in which there is an increasing complexity, such as *Paramoccium*, *Foraminifera*, *Diatorus*, and *Mucor*.

Next come organisms, in which complexity is attained by cell multiplication, though with little differentiation, fungi, and algæ; then solid aggregates in which differentiation is a marked factor, such as *Hydra* and *Porpita*. From these he proceeds to polygordius, mosses, and ferns. About fifteen pages are given to the higher types, starfish, crayfish, mussel, and dogfish, and to the higher plants, and special discussions on cells and nuclei. Biogenesis, homogenesis, origin of species, etc., are discussed in special chapters. In general, little criticism is suggested by the facts stated. For the teacher it may be said to be wholly unfit for elementary work, properly so-called. The author revels in a truly Lankesterian polysyllabic vocabulary, which the 13-page double-column index by no means fully explains. A very disproportionate amount of space is given to a few low types, and the pupil cannot obtain any general idea of the animal kingdom from the book without an amount of knowledge, insight, and study not to be expected of beginners. We should think the book well adapted to deter any student who was obliged to use it from taking any further interest in the study of biology, though an accomplished teacher might find it suggestive of what to avoid in his work.

AMONG THE PUBLISHERS.

THE Duke of Argyll will publish in the fall a book called "The Unseen Foundations of Society," which is described as an examination of the fallacies and failures of economic science due to neglected elements.

— The New York History Co., 132 Nassau St., N. Y., have just ready the second volume of the "Memorial History of the City of New York."

— Harry de Windt has written a book entitled "Siberia as It Is," which appears to be a defence of the Russian system of prison management, and is intended to be a reply to Mr. George Kennan and other travellers and writers who have attacked that administration as a system of "cruelties and atrocities which is a disgrace to a civilized country and to the nineteenth century."

— It is thought that it may be possible to bring out additional volumes of Freeman's "History of Sicily," so large is the mass of MSS. left by the historian. The MS. referring to the Norman conquest is practically complete, and would form a volume by itself. Besides all this, Freeman left more or less complete materials for a history of Rome down to the time of Mithridates; considerable fragments of a history of Greece; a work on King Pippin; a fragment of Henry I.; and some other manuscripts.

— W. B. Saunders, 913 Walnut Street, Philadelphia, have just ready "A New Pronouncing Dictionary of Medicine," by Dr. John M. Keating and Henry Hamilton. The work is a voluminous handbook of medical, surgical, and scientific terminology, containing concise explanations of the various terms used in medicine and the allied sciences, with phonetic pronunciation, etymology, etc.

— The F. A. Davis Company, Philadelphia, have just ready a new edition (the tenth) of the "Book on the Physician Himself, and things that concern his reputation and success," by Dr. D. W. Cathell, of Baltimore. The Davis Company will publish early in September "The New Pocket Medical Dictionary," compiled by Dr. David Braden Kyle from the latest authorities, and containing words recently introduced into medicine; also, addenda of abbreviations, affixes, list of diseases known by proper names, list of poisons and their antidotes, etc.

— The Clarendon Press has just issued a collection of the principal speeches delivered during the French Revolution, edited by Mr. H. Morse Stephens, the English historian of that period. The orators chosen are eleven in number, including Mirabeau, Barère, Danton, Robespierre, and St. Just. Prefixed to each is a life and explanatory comment; while a general introduction deals with